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Who receives social pensions? Evidence from greying India

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Abstract

Whether social transfers should be targeted or universal is an unsolved debate influencing the implementation of social protection schemes in developing countries. While the limited availability of public resources encourages targeting, the difficulty to identify the poor promotes a universal allocation. To address this question, this study examines the targeting performance of India's social pension scheme and the factors associated with access in 2004-05 and 2011-12, a time period of important reforms addressing social pension coverage and amount. The analysis shows that the reforms had limited success: The share of elderly poor not receiving social pensions decreased, but at the same time the share of elderly non-poor receiving social pensions slightly increased. Compared to a random allocation of social pensions, the benefits from targeting are very low despite of the implemented eligibility reforms. As intended by the reforms, holding a Below Poverty Line ration card has become the primary determinant of access to social pensions. However, this result holds also for non-poor individuals who exploit the unwarranted possession of a Below Poverty Line ration card to obtain social pension benefits. Even though the reforms were intended to make the beneficiary selection more transparent, the empirical results indicate that after the reforms individuals who have direct connections to local government officials are more likely to access social pension benefits.

Keywords: targeting, social pensions, old-age poverty, India

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1. Introduction

Accelerating demographic change, a persistently large informal sector and weakening family support for the elderly have important implications for old-age poverty in developing countries. Multi-generational household models that traditionally provided support to the elderly are diminishing due to declining fertility and migration (James, 2011). In contrast to the minority of formal sector workers that benefit from comprehensive social protection and old-age income security, the vast majority of informal sector workers is expected to face increased risks of old-age poverty in the near future given their lack of social protection coverage (e.g. Lloyd-Sherlock, 2000). Implemented as cash transfers, social pensions aim to mitigate old-age poverty faced by elderly individuals who lack social protection coverage (Holzmann & Hinz, 2005). To improve the old-age income security of the elderly poor, in 1995, the Indian government introduced the National Old Age Pension Scheme (Government of India, 1995).[1]

The effectiveness of social pensions in terms of old-age poverty reduction depends crucially on whether social pensions reach the elderly poor or not. However, the targeting performance remains an under-researched topic in India and existing studies suffer from different limitations. Dutta et al. (2010) and Gupta (2013) analyzed the implementation of social pensions in a descriptive manner for only a few selected states. Chopra and Puddussery (2014) and Garroway (2013) based their analysis on cross-sectional data sources and therefore could not rule out omitted variable bias. The latest study by Kaushal (2014) used repeated cross-sectional data for all of India but lacked data on social pension receipt and needed to approximate beneficiary status. Research on social pensions in other countries (e.g. Brazil and South Africa) has made the importance of social pensions for poverty reduction evident. The impact of social pensions is not restricted to the well-being of direct beneficiaries; other household members and especially grandchildren seem to benefit as well from the transfer (e.g. Duflo, 2000; Edmonds, Mammen, & Miller, 2005; Lloyd-Sherlock, 2006).

Unlike the existing literature, I focus in this paper on the targeting performance of social pensions to answer the question whether social pensions reach the elderly poor. A better understanding of this question is a substantial prerequisite for analyzing the effectiveness of social pensions in India and other developing countries with similar institutions that might face similar targeting

[1] While this national social pension scheme was introduced in the mid-nineties, several Indian states had previously implemented social pensions on the state level.

challenges. I first assess the targeting performance by quantifying the share of elderly poor receiving social pensions (coverage), the share of elderly poor not receiving social pensions (exclusion error) and the share of elderly non-poor receiving social pensions (inclusion error). Second, I analyze who receives social pensions and examine which factors affect access to social pensions and how these factors changed over time. Finally, I compare the relevant factors for poor and non-poor individuals.

To address the targeting challenge, the Government of India introduced social pension reforms in 2007. The results suggest that from 2004-05 to 2011-12, these reforms contributed to a reduction of the exclusion error but at the same time the inclusion error increased. Despite reform efforts, both targeting errors continue to be very high and the benefits from targeting compared to a hypothetical random allocation of social pensions appear to be negligible. Even though the allocation of social pensions has shifted towards the Below Poverty Line (BPL) card as a more observable criterion, this criterion itself is too weakly implemented to achieve effective targeting of the poor. BPL card holding is used by both poor and non-poor individuals to access social pensions and individuals who have direct connections with the local government have higher chances to receive the benefits.

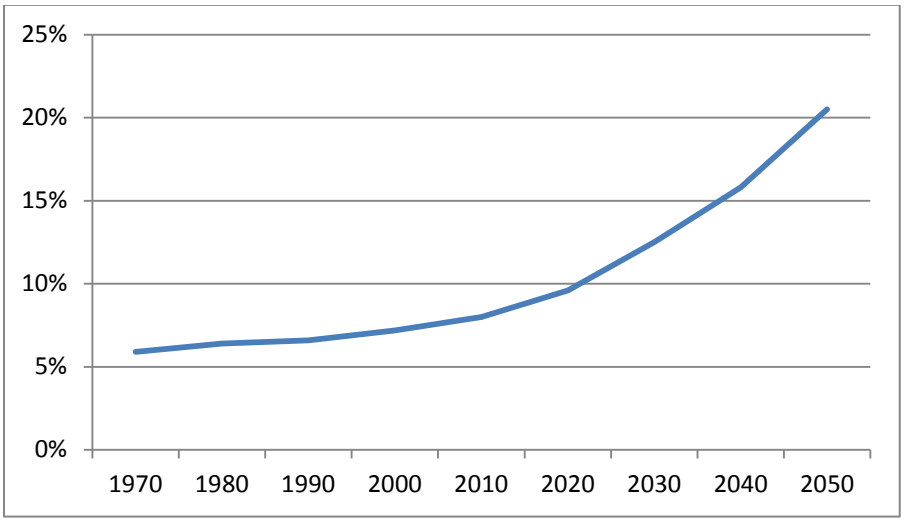
The remainder of the paper is structured as follows: Section 2 provides the background information on the implementation of social pensions in India and summarizes existing literature in this field. Section 3 provides the theoretical framework by describing the targeting challenges and how social pension reforms in the Indian context are related to it. Section 4 describes the data and explains the methodology. In section 5, I present the results from descriptive statistics and regression analysis before concluding in section 6.

2. Background: Social pensions in India

The need for an effective social pension scheme in India has been reinforced by progressing demographic change interlinked with weakening family support. Throughout the last decades, life expectancy has been increasing and fertility rates have been falling. Both developments together cause a continuously increasing old-age dependency ratio. As illustrated in Figure 1, while the current old-age dependency ratio is 8.6%, it is expected to rise to 20.5% in 2050 (United Nations, 2015). The fact that more than 90 percent of the labor force is working in the informal sector implies that the vast majority of elderly lacks all safety nets from which formal sector workers

benefit (Sastry, 2004). Many of them also lack adequate savings and their well-being in old-age depends essentially on governmental support beyond the support that their families can provide.

Figure 1: India's old-age dependency ratio from 1970 to 2050



The old-age dependency ratio is defined as the number of elderly individuals (65 years and older) divided by the number of working age individuals (15-64 years).

Source: Author's illustration, data from United Nations, 2015.

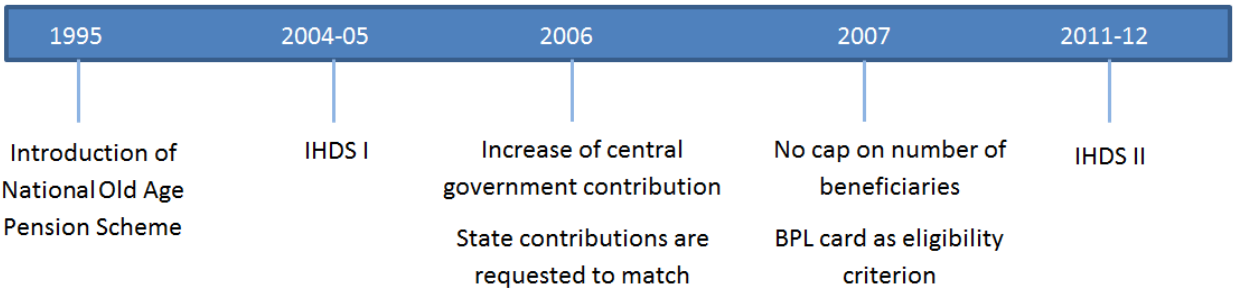
The Indian government recognized the need for social pensions and introduced the National Old Age Pension Scheme in 1995 (Government of India, 1995). The Ministry of Rural Development is in charge of the social pension scheme but the state governments are responsible for the implementation through panchayats[2] and municipalities, as stated in the guidelines from 1995: "The Panchayats/Municipalities will be responsible for implementing the schemes [and] are expected to play an active role in the identification of beneficiaries" (Government of India, 1995, p. 4). In addition to the eligibility age, the original guidelines by the Government of India stated that "the applicant must be a destitute in the sense of having little or no regular means of subsistence from his/her own sources of income or through financial support from family members or other sources" (Government of India, 1995, p. 5).

At the national level, the social pension reforms in India aimed at increasing the social pension amount as well as the coverage. In 2006, the central government contribution to the social pension amount was increased from 75 INR to 200 INR and the central government requested all

[2] Panchayats (i.e. village council) and municipalities represent the smallest local governance unit in rural and urban India respectively.

state governments to match the central government contribution (Government of India, 2006).[3] In 2007, the central government removed the cap on the number of beneficiaries and recommended to use the BPL card as eligibility criterion in addition to age (Government of India, 2007). Hence, from 2004-05 to 2011-12 the targeting mechanism of the national social pension scheme changed substantially. Instead of instructing local government officials to select the destitute elderly as beneficiaries, since 2007, they are supposed to use a more concrete criterion, the BPL card, for targeting. The timeline in Figure 2 gives an overview of the reforms and the IHDS data collection periods.

Figure 2: Timeline of national social pension reforms and IHDS data collection



Source: Author's illustration.

Similar to the national level social pension reforms, state governments also increasingly introduced BPL card holding as eligibility criterion for state level social pension schemes existing in many states in parallel to the national level social pension scheme. Guidelines and official documents published by state governments show that in many cases the unclear destitution criterion was replaced by the BPL card holding criterion (see Asri, Michaelowa, Panda, & Paul, 2016).[4] Hence, by law the relevance of holding a BPL card to access social pensions has increased. In India, BPL cards are also commonly used for access to other social protection schemes such as heavily subsidized health insurance, housing or food, despite strong criticism of its allocation which often neglects poorer households and allows non poor households to access benefits (Alkire & Seth, 2013; Ram, Mohanty, & Ram, 2009).

[3] In terms of purchasing power parity, 75 INR corresponded to 6.65 international USD in 2005 and 200 INR corresponded to 12.5 international USD in 2012 (World Bank, 2016).

[4] This is based on state level eligibility criteria for state level social pension schemes retrieved from different state government documents and websites. Taking into account this background information is important as IHDS data only includes information on whether an individual receives a social pension and it is not possible to differentiate between the national and the state social pension scheme.

Previous literature on the targeting performance of social pensions in India is limited. In the case of Rajasthan, Dutta (2008) reports evidence of under-coverage, high transaction costs of the application process, and not strictly enforced eligibility criteria. She further emphasizes that using BPL cards as eligibility criterion would worsen rather than strengthen the targeting of social pensions in the case of Rajasthan. This is in line with Ajwad (2007) who found for Uttar Pradesh that in 2004-05 70 percent of individuals from the poorest quintile did not possess any BPL or Antyodaya card (for the poorest families in the country), while 13 percent of the richest quintile possessed one of the two ration cards. Similarly, Ram et al. (2009) show that 40 percent of the BPL cards are possessed by non-poor households in India, and many deprived households do not hold a BPL card. Given the switch from the destitution criterion to the BPL card criterion, the targeting performance of social pensions in India is directly interlinked with the targeting performance of BPL cards. To date, there has been no comprehensive assessment of the targeting performance of social pensions in India and the existing knowledge relies on few studies which assessed the targeting performance of BPL cards, or focused on specific states to examine the implementation of social pensions.

3. Theoretical framework

After briefly summarizing the theoretical literature on targeting challenges, I describe the theoretical expectations on how the social pension reforms in the Indian context might have affected the targeting performance of social pension benefits.

3.1 The targeting challenge

The theoretical motivation behind targeting is clear: Allocating public resources only to those in need improves the effectiveness of poverty alleviation measures and keeps public spending low (Coady, Grosh, & Hoddinott, 2004). Targeting of social protection schemes gained particular importance in the phase of macroeconomic and structural adjustments when governments had to reduce public expenditures. However, targeting itself can be very costly especially in developing countries where data availability is limited and administration weak (Besley & Kanbur, 1990). Based on the various challenges that targeting is exposed to; even the strongest supporters agree that it is impossible to achieve precise targeting. Information gaps, missing data, misreporting and corruption lead to exclusion and inclusion errors in practice. These problems tend to be even more severe in developing countries that need effective poverty alleviation most (Dutrey, 2007).

In general, high exclusion errors and/or inclusion errors reduce the impact of an anti-poverty scheme (Slater, Farrington, Samson, & Akter, 2009). Exclusion error corresponds to the share of individuals in the target population not being covered by the social protection scheme and inclusion error is defined as the share of beneficiaries not belonging to the target population. In other words, the exclusion error stands for targeted individuals not receiving the benefits they are entitled to and the inclusion error implies that resources are absorbed by non-targeted individuals (Coady et al., 2004). As shown in the table below, an individual is wrongly excluded from an anti-poverty program if she is poor and does not receive the benefits and wrongly included if she is non-poor and receives the benefits that are targeted towards the poor.[5]

Table 1: Exclusion and inclusion error

	Welfare status of individual	
	Poor	Non-Poor
Individual does not receive benefits from anti-poverty program	Exclusion error	Successful targeting
Individual receives benefits from anti-poverty program	Successful targeting	Inclusion error

Source: Author's illustration based on Coady et al., 2004, p. 10.

Following Coady et al. (2004, p. 10), these two commonly used measures of mistargeting are quantified as follows. The indicator for the exclusion error is the number of poor individuals who are excluded from the program ($N_{p.o}$) divided by the number of poor individuals (N_p):

$$Exclusion\ error = \frac{N_{p.o}}{N_p} \qquad (1)$$

The indicator for the inclusion error is the number of beneficiaries of the anti-poverty program who are classified as non-poor divided ($N_{np,i}$) by the number of beneficiaries (N_i):

$$Inclusion\ error = \frac{N_{np,i}}{N_i} \qquad (2)$$

Approaches aimed at reducing the exclusion error of a social protection scheme typically face the risk of simultaneously increasing the inclusion error and vice versa. For instance, relaxing documentation requirements to reduce the exclusion error will also make non-targeted individuals' access easier (Coady et al., 2004). Considering the existing knowledge on the

[5] Since this section is about exclusion and inclusion errors for the general case of anti-poverty scheme, I do not take into account the age criterion here which is relevant for social pensions. The methodology section below explains specifically for social pensions how I consider age and poverty status of the individuals to measure exclusion and inclusion error.

targeting challenge, this study will shed light on how the described social pension reforms affected the targeting performance of India's social pension scheme.

3.2 Theoretical expectations

The welfare effects of social pensions are at the maximum when elderly individuals with consumption expenditures below the poverty line (targeted individuals) receive social pensions and individuals with consumption expenditures above the poverty line (non-targeted individuals) do not. In practice, however, not only poor and old individuals but also non-poor and/or not old individuals receive social pensions. Exclusion error and inclusion error exist for multiple reasons. Based on the existing literature, it is plausible to assume that the poorest elderly face the biggest difficulties in accessing social pensions. They are more likely to lack awareness on social pension schemes as well as capabilities and documents required during the application process. Their transaction costs for application might also be substantially higher if they lack experience of dealing with local governments and/or if they live in remote areas.

To tackle the targeting issues, the first reform removed the cap on the number of beneficiaries in 2007. I expect this reform to increase the coverage of the elderly poor and to reduce the exclusion error simply due to the increased availability of social pension benefits. At least in principle, there are no more reasons to reject anyone who can show that he or she is old and poor. Moreover, I would expect that with a cap on the number of beneficiaries in place, better informed elderly apply for social pension benefits before other elderly and before the cap on the number of beneficiaries is reached. However, the reform may also increase the inclusion error, as the inclination to access social pension benefits might increase also among the non-poor who perceive higher chances to get the social pension when they become aware of the removed cap.

The second reform in 2007 focused on the eligibility criteria. The targeting approach for the social pension scheme shifted from a vague and non-transparent approach to a better observable approach. Theoretically, BPL cards facilitate the identification of beneficiaries. They can make it easier for government officials to select beneficiaries and for elderly poor to identify themselves as they would be able to show their BPL card more easily than e.g. their low income certificate. However, in practice the allocation of BPL cards itself is criticized for being weakly targeted towards the poor (see for example Alkire and Seth, 2013). Introducing BPL ration cards as eligibility criterion would only lead to an improvement of targeting of social pensions if these

cards were better targeted towards the poor than the local governments' selection based on the 'old' destitution criterion. Given these opposing theoretical expectations, the question whether the introduction of this reform improved the targeting performance can only be answered empirically. These expectations relate to the aggregate level and are examined in the descriptive part of the empirical analysis.

At the individual level, examined in the regression analysis, targeting problems directly influence who obtains access to social pensions and who does not. The theoretical expectations on the factors determining individual level access to social pensions are therefore based on the scarcely existing literature on the targeting weaknesses of social pensions in India and also influenced by research on the relevance of social capital for access to public benefits in developing countries. Given the described difficulties in targeting particularly prevalent in a developing country context, I expect that access to social pensions does not only depend on an individual's eligibility. For obtaining relevant information and receiving social pensions, contacts and embeddedness in a local network also matter.

First, I expect that individual's eligibility determined by age and poverty status – destitution before 2007 and BPL card holding after – is positively associated with the likelihood to access social pensions. Before the reform, proxies for destitution such as the ownership of household assets or land holding might have been used to determine the destitution of the elderly person. After the reform, I expect to observe an increased importance of BPL card holding. This expectation is entirely based on official documents (Government of India, 2007) and should be evident in the regression results if state and local governments followed the modified eligibility criteria.

Second, I anticipate that direct connections to local government officials can influence the selection of beneficiaries and speed up the granting of social pensions. This concern of preferential treatment depending on political connections has been raised already for the last decades. Drèze and Sen (1989, p. 107) emphasized that political influence is likely to determine the allocation of funds by local governments across the poor and the non-poor. Particularly the decentralization of the administration of anti-poverty transfers with local governments receiving greater responsibilities was accompanied by elite capture of public funds (Kochar, 2008). Recently, Panda (2015) showed the relevance of political connections for accessing BPL cards in

the Indian context which reinforces the expectation that connections to local governments also play a role for other social benefits such as social pensions.

Third, I expect that membership of social organizations and participation in public meetings affect access to social pensions. Regular participation in public meetings can play an important role in disseminating awareness related to social pension benefits and I therefore expect that participating in public meetings is positively associated with social pension coverage. Similarly, membership in social organizations such as self-help groups, caste associations or women groups can help to acquire awareness and capabilities relevant for social pension access.

4. Data and methodology

4.1 The India Human Development Survey

The IHDS was conducted by the National Council of Applied Economic Research and University of Maryland (Desai et al., 2007, 2015). This nationally representative individual-level panel survey dataset surveyed 41,554 households (215,753) in 1503 villages and 971 urban neighborhoods across India using a stratified, multistage sampling procedure in 2004-05 and re-interviewed households in 2011-12.[6] The survey is spread over all the states and union territories of India except Andaman & Nicobar Islands and Lakshadweep which together account for less than 0.05% of India's population. The IHDS includes a broad range of economic development question modules regarding demographics, health, public welfare programs, fertility, agriculture, employment, gender relations and women's status, beliefs, education, social networks, institutions, etc. at both individual and household level (Desai et al., 2007). From IHDS data, I use information on *social pension receipt*, eligibility of the individual (*age, land holding, household assets, BPL card*), *local government connection*, participation in *public meeting* and membership of *social organization.* I control for labor market participation, education, mass media usage, gender, household size, number of adults living in the household, urban areas, caste belonging and religion. The complete list of variables and their definitions is shown in Appendix 1. As IHDS is the first national panel data set covering multiple topics and collected before and after the major reforms in 2007, it is the most suitable data set for the analysis of social pension targeting in India.

[6] In 2004-05, the survey covers 26,734 households (143,374 individuals) in rural areas and 14,820 households (72,380 individuals) in urban areas. In 2011-12, the survey covers 27,579 rural household (135,118 individuals) and 14,573 urban households (69,450 individuals) (Desai et al., 2015).

In the empirical analysis, I focus on individuals in the relevant age group and exclude children and adults who are much younger than the eligibility age. Based on descriptive statistics from IHDS showing that the eligibility cutoff is not strictly enforced in practice (Appendix 3), I use a sample of individuals who are at maximum 10 years younger than the state level eligibility age for social pension.[7] Moreover, for assessing the changes in relevant factors over time, it is essential for the regression analysis that individuals are surveyed twice. To ensure comparability between the descriptive statistics and empirical estimations, I present the entire empirical analysis for a balanced panel.

4.2 Methodology

The descriptive analysis of the targeting performance is based on the calculation of two commonly used measures for assessing the targeting performance: Coverage of the elderly poor and targeting errors. To judge whether an individual is poor or not it is necessary to take into account that consumption expenditures of social pension recipients might be above the poverty line due to the social pension receipt but could have been below the poverty line in the absence of the transfer. To ensure that these individuals are counted as poor beneficiaries, I implement a preparatory adjustment in two steps: I first adjust the monthly per capita consumption expenditure for the social pension benefits received and second compare the adjusted value of consumption expenditure per capita to the local poverty line.[8] Based on the existing qualitative and quantitative studies analyzing the impact of social pensions on consumption expenditures (e.g. Help Age International, 2009; Kaushal, 2014; Lloyd-Sherlock, 2006), this calculation assumes that social pension benefits are pooled with other household income. In the developing country setting, it seems to be more plausible that the social pension income is shared with other household members than consumed entirely by the beneficiary.[9]

After this preparatory adjustment, I calculate the coverage of the elderly poor, the exclusion error and the inclusion error. In the case of social pensions, the coverage of elderly poor is the number of elderly poor receiving social pensions divided by the number of elderly poor. The exclusion

[7] The eligibility ages across India are shown in Appendix 2.

[8] The local poverty line accounts for different price levels over time, between states and between rural and urban areas and is based on the Tendulkar approach for both years to ensure comparability. Due to the extremely high inflation in 2012, the poverty line is also adjusted for the month of the interview (Desai et al., 2015).

[9] Heterogeneity in this regard cannot be ruled out and this approach is a necessary simplification of the real circumstances.

error is the number of elderly poor not receiving social pensions divided by the number of elderly poor and the inclusion error is the number of non-targeted beneficiaries (who are either younger than the eligibility age or non-poor or both) divided by the number of beneficiaries.

Considering the high costs of targeting and the limited availability of resources in developing countries, I compare the targeting errors of social pensions to the targeting errors of a hypothetical random allocation of social pension benefits (e.g. Besley & Kanbur, 1990). This helps us to understand the benefits of the existing targeting approach and to compare it to a much cheaper alternative – the random allocation of social pensions. I simply subtract the actual targeting error from the targeting error under random allocation to measure the benefits of targeting social pensions towards the poor instead of distributing social pensions randomly to individuals.[10]

To understand which factors affect access to social pensions, I estimate a linear probability model (LPM) with the baseline specification presented below. For all specifications, the dependent variable is *social pension receipt* and the variables of interest reflect eligibility for social pension receipt (age, household assets, land holding and BPL card) and social capital (local government connection, public meeting and social organization). I exploit the panel data structure of the data to estimate a LPM with individual fixed effects. This approach removes the omitted variable bias related to unobserved time-invariant individual characteristics that the cross-sectional regressions are suffering from. I use interaction terms between the time dummy and variables of interest to assess how factors changed over time. Finally, I am interested in understanding whether the factors of interest, namely eligibility and indicators of social capital, play a different role for poor and non-poor households. To test this empirically, I employ triple interactions of the time dummy, the variables of interest and a dummy for being poor in terms of asset ownership.

Equation 1: Baseline specification

$$\begin{aligned}\text{Social pension receipt}_{it} &= \beta_0 + \beta_1 \text{Age}_{it} + \beta_2 \text{Assets}_{it} + \beta_3 \text{Land}_{it} + \beta_4 \text{BPL card}_{it} \\ &+ \beta_5 \text{Local government connection}_{it} + \beta_6 \text{Public meeting}_{it} \\ &+ \beta_7 \text{Social organization}_{it} + \beta_8 \text{After}_t + \gamma X_{it} + a_i + u_{it}\end{aligned}$$

[10] I thank Stefan Klonner and Michael Schleicher for suggesting this comparison.

In line with the research interest of this study, the LPM is particularly suitable for the estimation of marginal effects in fixed-effects regression models (Angrist & Pischke, 2009; Wooldridge, 2002) and for examining changes over time with interaction terms (Ai & Norton, 2003). All regression results are presented with robust standard errors that are adjusted for the conditional heteroscedasticity in the estimation of LPM (Wooldridge, 2002).

5. Results

5.1 Descriptive statistics

The sample of analysis includes all elderly who are at maximum 10 years younger than the eligibility age and surveyed twice by IHDS (balanced panel). The summary statistics are shown in Table 2 separately for 2004-05 and 2011-12.[11] The share of elderly receiving *social pensio*n increased from 5.3 percent in 2004-05 to 24.4 percent in 2011-12. Concerning the independent variables of interest indicating eligibility for social pensions, I observe that the average age has increased from 61.8 years to 68.7 years corresponding to the time between the two survey rounds and the share of elderly individuals living in households that hold BPL cards increased from 33.5 percent to 40.6 percent. Ownership of assets has increased from 12.8 to 15.3 assets on average while the size of land holding declined from 2.4 acres to 2.0 acres on average. These are both factors that might have been used to assess the poverty status of social pension applicants prior to the social pension reforms; however the destitution criterion provided by the national government lacks any further specification. Concerning the independent variables of interest indicating social capital in different forms, I observe that the share of elderly living in households that are directly connected with the local government officials has increased substantially from 11.0 percent to 28.3 percent. Participation in public meetings stayed stable (30.3 percent to 31.4 percent) and membership in social organizations increased from 35.3 percent to 39.2 percent.

Concerning the control variables, I observe that watching TV and reading newspaper has become less common (potentially driven by access to other media at the household level). Other co-variates developed as expected. Education levels of the elderly stayed at the same level (3 years of education on average), the household highest education levels increased slightly from 8.3 to 8.5 years. Directly related to the well-being of elderly individuals, I observe that from 2004-05 to

[11] For simplicity, I use the term elderly even though the sample includes individuals who are at maximum 10 years below the local eligibility age for social pensions.

2011-12, the labor force participation of the elderly in the sample (defined as having worked at least 240 hours in the last year) declined from 55.9 percent to 33.6 percent. This reduction in labor force participation seems to be primarily driven by the higher age of individuals in the sample. Moreover, the share of elderly individuals living in households in which at least one person has a permanent job, slightly increased from 14.5 percent to 17.5 percent. I also control for village level variables indicating development in the village (*share of electrified households*), collaboration between villagers (*families collaborate*) and absence of conflicts (*peaceful village*). All these three indicators measured at the village level have improved over time with higher shares of households having electricity, higher shares of households reporting that families help each other to solve local problems and higher shares of household reporting that people get well along with each other.

The variable *Poor Tendulkar* in the bottom of the table indicates whether an individual has a per capita consumption level below the local poverty line following the Tendulkar approach for both years. The variable *Poor Tendulkar adjusted*, as described above, accounts for the social pension benefits received to facilitate the calculation of exclusion and inclusion errors. Due to this adjustment, the latter shows a slightly higher share of individuals with consumption levels below the poverty line. Overall, the share of elderly individuals living below the poverty line decreased from 30.0 percent to 16.7 percent (based on *Poor Tendulkar*).

Table 2: Summary statistics

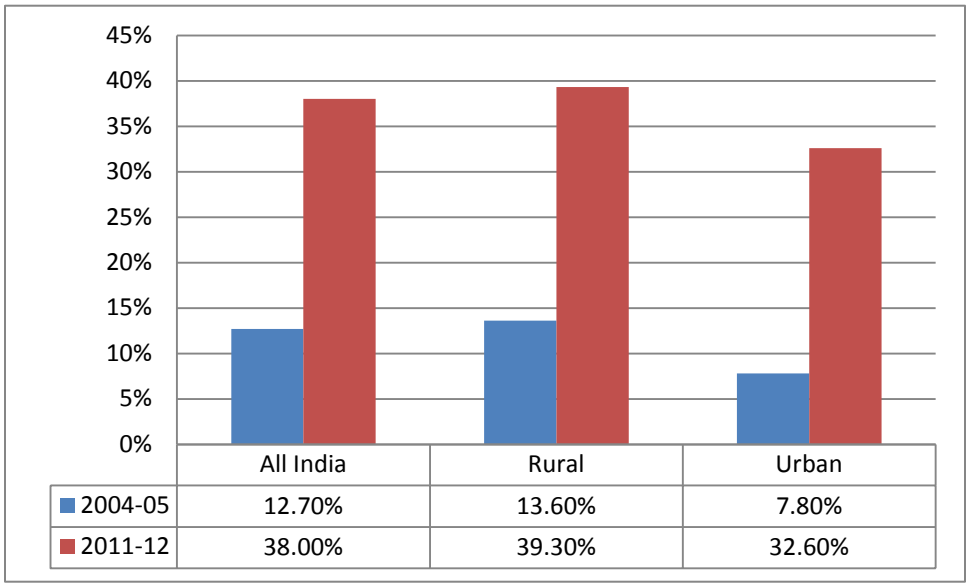
	IHDS 2004-05				IHDS 2011-12				Variable category
	mean	sd	min	max	mean	sd	min	max	
Social pension	0.053	0.225	0	1	0.244	0.430	0	1	Dependent variable and independent. variables of interest
Age	61.819	7.537	45	100	68.680	8.284	45	99	
BPL card	0.335	0.472	0	1	0.406	0.491	0	1	
Household assets	12.825	6.266	0	30	15.343	6.352	0	30	
Land holding	2.413	5.699	0	200	2.010	6.924	0	400	
Local government connection	0.110	0.313	0	1	0.283	0.450	0	1	
Public meeting	0.303	0.460	0	1	0.314	0.464	0	1	
Social organization	0.353	0.478	0	1	0.392	0.488	0	1	
Watching TV	0.344	0.475	0	1	0.256	0.436	0	1	Control variables
Reading newspaper	0.853	0.354	0	1	0.659	0.474	0	1	
Education	3.072	4.326	0	15	3.021	4.306	0	15	
Highest adult education in household	8.297	5.093	0	15	8.497	5.139	0	15	
Working	0.559	0.496	0	1	0.336	0.472	0	1	
Permanent job in household	0.145	0.352	0	1	0.175	0.380	0	1	
Share of electrified households	0.760	0.298	0	1	0.881	0.202	0	1	
Families collaborate	0.596	0.491	0	1	0.739	0.439	0	1	
Peaceful village	0.543	0.498	0	1	0.599	0.490	0	1	
Head of household	0.506	0.500	0	1	0.520	0.500	0	1	
Widow	0.238	0.426	0	1	0.359	0.480	0	1	
Household size	6.139	3.290	1	38	5.407	2.956	1	30	
Urban	0.270	0.444	0	1	0.296	0.456	0	1	
Other backward castes	0.405	0.491	0	1	0.412	0.492	0	1	
Scheduled castes	0.181	0.385	0	1	0.184	0.387	0	1	
Scheduled tribes	0.061	0.240	0	1	0.062	0.241	0	1	
Female	0.514	0.500	0	1	0.517	0.500	0	1	Time-invariant characteristics
Hindu	0.823	0.382	0	1	0.828	0.378	0	1	
Muslim	0.096	0.295	0	1	0.097	0.296	0	1	
Poor Tendulkar	0.300	0.458	0	1	0.167	0.373	0	1	Poverty measure
Poor Tendulkar adj.	0.303	0.460	0	1	0.183	0.387	0	1	
Observations	14952				14952				

The sample is restricted to individuals at maximum 10 years younger below eligibility age. For the definitions of all variables see Appendix 1. The variables social pension, age, education, working, head of household, widow and female are measured at the individual level; the other variables are measured at the household level.

Source: Author's illustration based on IHDS I for 2004-05 and IHDS II for 2011-12.

Building up on the summary statistics that showed that a larger share of the individuals in the sample received social pension benefits in 2011-12, Figure 3 shows that the social pension coverage of the elderly poor improved over time. The share of elderly poor receiving social pensions tripled from 2004-05 to 2011-12 at the national level. This improvement was even stronger in urban areas where the coverage quadrupled.

Figure 3: Coverage of elderly poor



	All India	Rural	Urban
2004-05	12.70%	13.60%	7.80%
2011-12	38.00%	39.30%	32.60%

Figures account for sampling weights.
Source: Author's illustration based on IHDS I for 2004-05 and IHDS II for 2011-12.

Despite of this progress in covering a higher share of elderly poor, the calculation of exclusion and inclusion errors makes the weak targeting performance of social pensions evident. In 2004-05 and 2011-12, a large share of elderly poor lacked access to social pension benefits (exclusion error) and a large share of non-poor elderly individuals received the social pension (inclusion error).

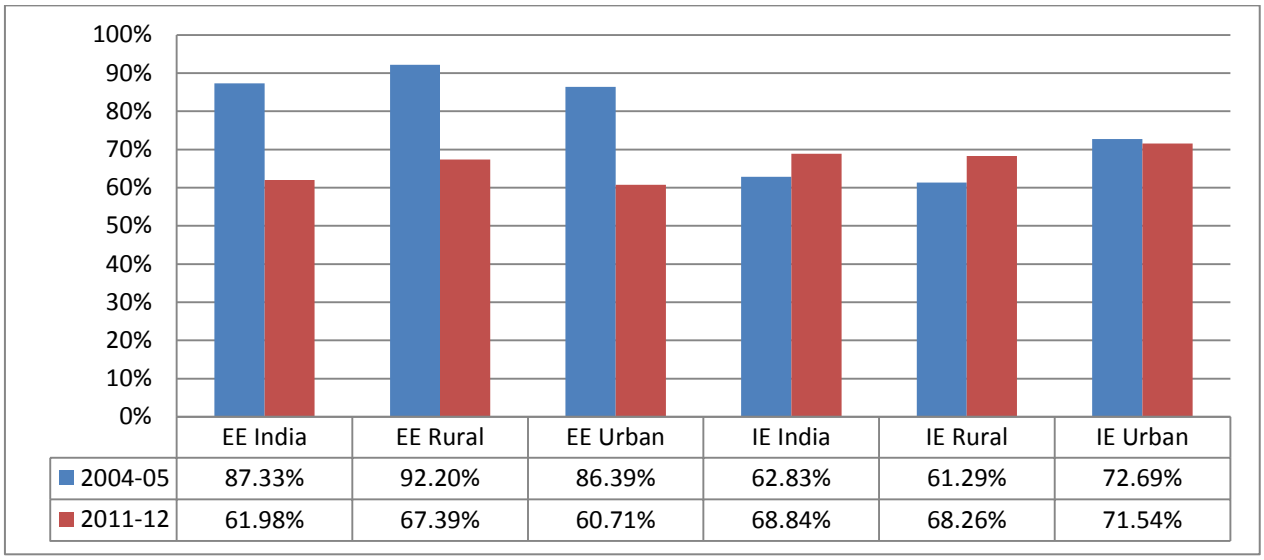
The first part of Figure 4 shows that the exclusion error (EE) decreased from 87% in 2004-05 to 62% in 2011-12. The share of targeted individuals (older than the local retirement age and poor) who did not receive the social pension among all targeted individuals was reduced by about 25 percentage points. The pattern is similar in rural and urban India. In contrast to the decreasing exclusion error, the inclusion error (IE) increased from 63% in 2004-05 to 69% in 2011-12. This aggregate development seems to be mainly driven by the increasing inclusion error in rural areas

as the inclusion error stayed stable in urban areas. It seems that the reforms, i.e. the expansion of social pension coverage and the change in the eligibility criteria towards relying increasingly on BPL card holding, have contributed to reducing the erroneous exclusion of individuals from social pension benefits but increased the erroneous inclusion of individuals in the welfare scheme. Overall, both errors continue to be very high. Almost two third of the elderly poor continue to be left out (exclusion error) and similarly two thirds of the beneficiaries are either non-poor or younger than the eligibility age or both and receive social pension benefits (inclusion error).

Since these targeting errors appear to be very high, it is relevant to assess how the targeting of social pensions in India performs in comparison to a hypothetical random allocation of social pension benefits. As illustrated in the second part of Figure 4, in 2004-05 the real exclusion error was only 6 percentage points lower than exclusion error under random allocation. This nominal benefit of targeting increased over time to a difference of 13.5 percentage points in 2011-12. For the inclusion error, I observe the opposite. While in 2004-05, the inclusion error used to be 22 percentage points lower under targeted allocation compared to random allocation, in 2011-12 this benefit from targeting reduced to 12 percentage points. In terms of wrongly excluding poor elderly from the scheme, the targeting performance has improved over time as the difference between the targeting error under random allocation and the real targeting error increased. However, in terms of including non-targeted individuals, the targeting performance has deteriorated as the difference between the targeting error under random allocation and the real targeting error decreased. Overall, this comparison shows that despite of the social pension reforms the benefits from targeting compared to the random allocation seem to be relatively small and the applied targeting approaches in 2004-05 and 2011-12 would be even more questionable if there was data available allowing a measurement of the costs of targeting.

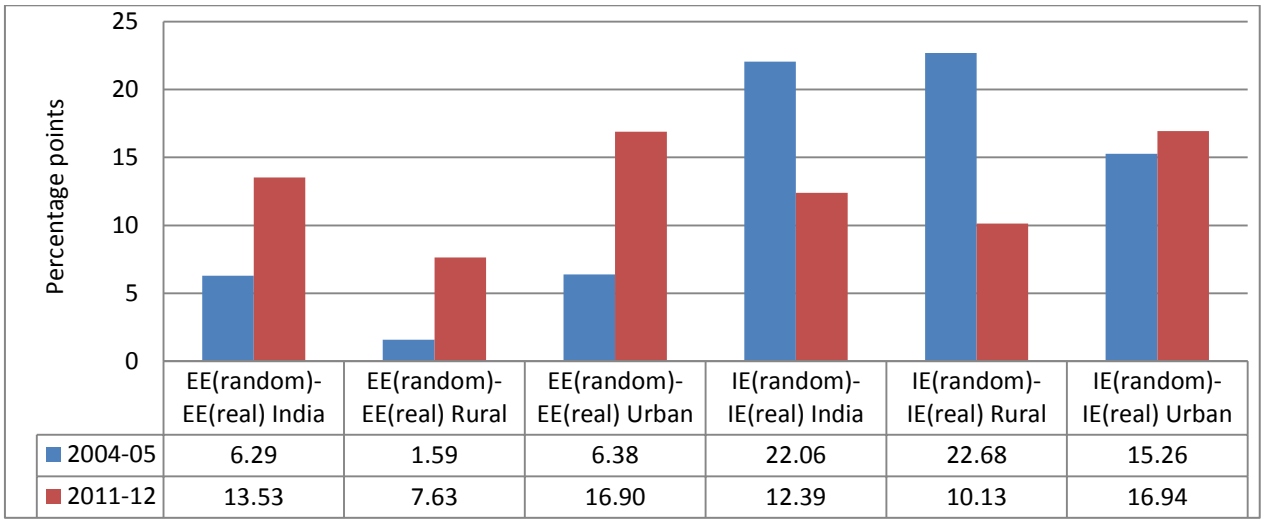
Figure 4: Targeting errors

(a) Development of exclusion error (EE) and inclusion error (IE) from 2004-05 to 2011-12



	EE India	EE Rural	EE Urban	IE India	IE Rural	IE Urban
2004-05	87.33%	92.20%	86.39%	62.83%	61.29%	72.69%
2011-12	61.98%	67.39%	60.71%	68.84%	68.26%	71.54%

(b) Compared to random allocation of social pension benefits



	EE(random)-EE(real) India	EE(random)-EE(real) Rural	EE(random)-EE(real) Urban	IE(random)-IE(real) India	IE(random)-IE(real) Rural	IE(random)-IE(real) Urban
2004-05	6.29	1.59	6.38	22.06	22.68	15.26
2011-12	13.53	7.63	16.90	12.39	10.13	16.94

Figures account for sampling weights.

Source: Author's illustration based on IHDS I for 2004-05 and IHDS II for 2011-12.

5.2 Regression results

I present below the results from the LPM estimations in different specifications. All regression models include all control variables, time fixed effects and individual fixed effects. Table 3 shows the regression results introducing the social capital variables separately and in the last specification jointly. Since the coefficients are very close to each other in size and statistical significance, the preferred specification is the last one which includes all the independent variables of interest.

Keeping all other factors constant, obtaining access to social pensions in 2011-12 is 10.8 percentage points more likely than in 2004-05. This difference is significant at the 1 percent level and seems to be primarily attributable to the removal of the cap on the number of beneficiaries. Further, being 10 years older increases the likelihood of receiving social pensions by 4.8 percentage points and holding a BPL card by 6.6 percentage points. Both coefficients are significant at the 1 percent level. Given the average predicted value of access to social pensions being 13.8 percent, the size of the coefficients is also economically significant.

Regarding the social capital variables, the panel regression results support only the theoretical expectation on the relevance of connections to the local government for access to social pension benefits. Living in a household that reports direct connections to the local government is associated with a 2.3 percentage points higher chance of receiving social pensions (significant at the 5 percent level). Participation in public meetings and membership in social organizations are not associated with social pension receipt.

Asset ownership and land holding, two relevant proxies for assessing medium- to long-term poverty are not significantly related to access to social pensions despite of the scheme's official objective to target the elderly poor. In the fixed effects regressions presented here these effects vanish, probably because most households who are poor in 2004-05 also remain poor in the second period and hence the effect is soaked up by the individual fixed effects.

Table 3: Panel analysis of access to social pensions

	Linear probability model with individual fixed effects: 2004-05 to 2011-12			
VARIABLES	(1)	(2)	(3)	(4)
After	0.1075***	0.1111***	0.1110***	0.1075***
	(0.010)	(0.010)	(0.010)	(0.010)
Age	0.0048***	0.0048***	0.0048***	0.0048***
	(0.001)	(0.001)	(0.001)	(0.001)
BPL card	0.0661***	0.0661***	0.0661***	0.0661***
	(0.009)	(0.009)	(0.009)	(0.009)
Household assets	0.0004	0.0005	0.0005	0.0004
	(0.001)	(0.001)	(0.001)	(0.001)
Land holding	0.0005	0.0006	0.0006	0.0005
	(0.001)	(0.001)	(0.001)	(0.001)
Local government connection	0.0230**			0.0231**
	(0.009)			(0.010)
Public meeting		0.0034		-0.0004
		(0.008)		(0.009)
Social organization			0.0013	0.0007
			(0.008)	(0.008)
Observations	29,904	29,904	29,904	29,904
Number of id	14,952	14,952	14,952	14,952
Avg. prediction of Y	0.138	0.138	0.138	0.138
Share of predicted values in [0;1]	85%	85%	85%	85%
Adjusted within R-squared	0.203	0.202	0.202	0.203

The dependent variable is *social pension receipt*. Using sampling weights, I account for sampling design. Cluster-robust standard errors are shown in parentheses. All control variables are included.
* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

Source: Author's estimations based on IHDS I for 2004-05 and IHDS II for 2011-12.

These results provide a first impression of the relevant factors but do not indicate how these factors have changed over time in response to the described reforms in 2006-07. To test whether the relevance of BPL card holding, local government connection, participation in public meetings and membership in social organizations changed from 2004-05 to 2011-12, I include interaction terms of the dummy variable *after* and these variables of interest in the regression. Table 4 presents the marginal effects for each time period resulting from the regression including all

variables of interest and their interaction terms as well as all control variables and individual fixed effects.[12]

In line with the changed national eligibility guidelines, *BPL card* holding substantially gained importance. In 2011-2012, an individual who holds a BPL card has ceteris paribus a 16.2 percentage points higher chance to obtain access to social pensions indicating that the centrally reformed eligibility criterion was implemented by the local governments in panchayats and municipalities. During the considered time period, the BPL card has become the most important determinant of access to social pensions and is significant at the 1 percent level. As described before, prior to the reform, local government officials were requested to select individuals for the national social pension scheme based on the destitution criteria and I observe that *BPL card* holding in the 2004-05 was negatively associated with social pension access. Since individuals living in households that held a BPL card were entitled to access other anti-poverty schemes (such as subsidized food or public works program), they were potentially considered as less destitute than those who lived in households that did not even have a BPL card.

The expectation of the relevance of connections with the local government is supported by the empirical analysis. The results in Table 4 show that having direct connections with local government officials gained importance over time. In 2004-05, I do not observe any significant effect of connections to the local government on the likelihood of receiving social pensions. However in 2011-12, being connected to the local government increases the likelihood of receiving social pensions by 3.2 percentage points (significant at the 1 percent level).

[12] The regression results are shown in Appendix 4. For readability, I present directly the marginal effects here, as the marginal effect for the time period after the reform is the linear combination of the coefficient of the independent variable of interest and the of the coefficient of the interaction term of the independent variable of interest and the time dummy.

Table 4: Access to social pensions - marginal effects before and after the reform

	(1)	(2)	(3)	(4)
	BPL	Local government connection	Public meeting	Social organization
Before	-0.0354***	0.0076	-0.0128	-0.0102
	(0.002)	(0.651)	(0.282)	(0.309)
After	0.1622***	0.0316***	0.0082	0.0092
	(0.000)	(0.009)	(0.468)	(0.352)

P-values are shown in parentheses.
*** p<0.01, ** p<0.05, * p<0.1

Source: Author's estimations based on IHDS I for 2004-05 and IHDS II for 2011-12.

These results potentially mask heterogeneity in the factors playing a role for elderly individuals from poor and non-poor households. To examine the heterogeneity between these two groups for access to social pension benefits before and after the reform, I include triple interaction terms of the time dummy, the variables of interest and the dummy for living in an asset poor household.[13] The variable *asset poor* is equal to 1 if the household's asset ownership is in the lowest quartile of the asset ownership distribution.

Before the reforms, the negative and significant coefficient of BPL card holding that I observe for the full sample is driven by the individuals living in asset non-poor households. I only observe the negative association between BPL card holding and social pension receipt in 2004-05 for the individuals living in asset non-poor households but not for individuals living in asset poor households. After the reform, BPL card holding is relevant for individuals living in asset poor and asset non-poor households. For individuals living in asset poor households, holding a BPL card is associated with a 13.9 percentage points higher likelihood of receiving social pensions. For individuals from asset non-poor households it is even associated with a 15.8 percentage points higher likelihood of receiving social pensions. This result strongly indicates that non-poor individuals exploit the unwarranted possession of BPL cards to obtain social pension benefits. For the other factors, I do not observe significant differences between the two groups. However, the effect of local government connections on social pension receipt seems to be primarily driven by individuals living in asset non-poor households.

[13] I prefer this approach compared to using a dummy variable for being poor (based on the Tendulkar poverty line) as this would rely on consumption expenditures which are directly impacted by the social pension income. The full regression tables are presented in the Appendix.

Table 5: Heterogeneous marginal effects for asset poor and asset non-poor individuals

Period	Variable	Asset poor	Asset non-poor	P-value of difference
Before	BPL card	0.0213	-0.0523***	0.0023
After	BPL card	0.1394***	0.1583***	0.4094
Before	Local government connection	-0.0012	0.0052	0.8367
After	Local government connection	0.0251	0.0587***	0.7267
Before	Public meeting	0.0005	-0.0202	0.2682
After	Public meeting	0.0190	0.0073	0.6788
Before	Social organization	-0.0072	-0.0134	0.5475
After	Social organization	0.0225	0.0079	0.5471

P-values are shown in parentheses.
*** p<0.01, ** p<0.05, * p<0.1
Source: Author's estimations based on IHDS I for 2004-05 and IHDS II for 2011-12.

5.3 Robustness

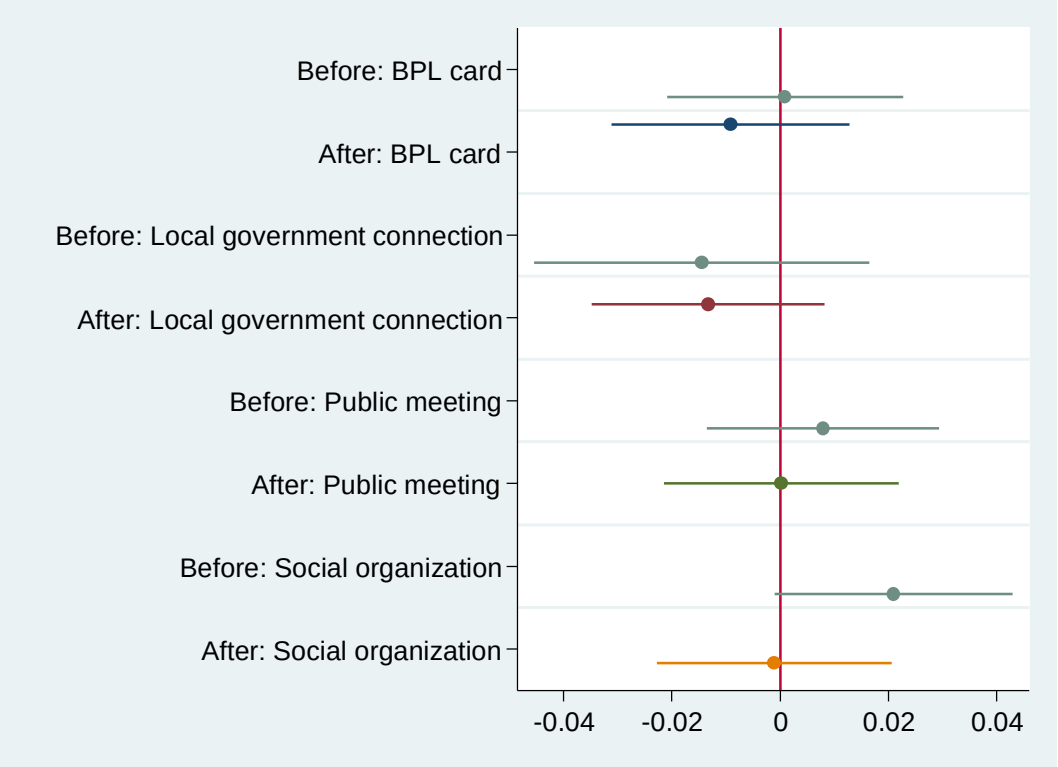
The increased coverage could lead to a simultaneity bias if the dependent variable and the independent variables of interest increased independently driven by some unobservable factors. I am particularly concerned by the relatively strong increase observed for the dependent variable *social pension* receipt and the independent variables *BPL card* holding and *local government connection*. This spurious correlation could be the only reason for observing that BPL card holding and connections to local government officials have become more important for access to social pension benefits from 2004-05 to 2011-12 as described in the previous section.

To address this concern, I conduct a placebo check. I randomly assign social pension receipt in both time periods to the individuals in the sample to mimic the coverage expansion that took place from 2004-05 to 2011-12. In this random allocation, I take into account the number of beneficiaries in 2004-05, in 2011-12 and how many individuals received social pensions in both rounds. I also account for the fact that in the Indian social pension system, individuals who start to receive social pension in one period typically continue receiving it in the next period independent of their poverty status.

Given this random allocation, I run the same regressions again and use *random pension recipient* as dependent variable. Under random allocation, the positive and significant effects of political connections and BPL card holding that I observed before for the second time period, completely disappear and thereby the placebo test confirms that the previously found relationship between these two variables of interest and the dependent variable were not caused by a spurious

correlation between the left hand side variable and the right hand side variables. The results of the placebo check are visualized below.

Figure 5: Placebo check



Source: Author's illustration and estimation based on IHDS I for 2004-05 and IHDS II for 2011-12.

6. Conclusion

This study aimed to examine the targeting performance of social pensions in India and to answer the question of who receives the social pension benefits. The descriptive statistics show that from 2004-05 to 2011-12, a time period encompassing important social pension reforms, the targeting of social pensions improved only partially. The exclusion error reduced substantially from 87 percent to 62 percent but the inclusion error increased from 63 percent to 69 percent, indicating that a major share of resources continues to be absorbed by non-targeted individuals who are either non-poor or younger than the retirement age. The reduction of the exclusion error seems to be primarily achieved through the removal of the cap on the number of beneficiaries allowing elderly individuals to apply any time and increasing their chances to obtain access to social pension benefits. Nevertheless, the persistently high targeting errors indicate that social pension reforms in the past have not been successful in facilitating access for the majority of elderly poor.

Particularly, the very low benefits of targeting apparent when comparing the targeting errors under random allocation to actual targeting errors imply that there is urgent need to reconsider the targeting of social pension benefits in India due to the obvious difficulties in identifying the elderly poor for the scheme. For the ongoing debate on targeting versus universalizing social pension benefits, future research that compares the costs to the benefits of targeting will be particularly informative.

As intended by the reforms, I find that holding a BPL card has become the primary determinant of access to social pensions. However, this result holds also for non-poor individuals who exploit the unwarranted possession of a BPL card to obtain social pension benefits. The results further indicate that after the reforms, connections to local government officials indeed facilitate access to social pension benefits. This result in combination with the insight that weakly targeted BPL cards enable non-poor individuals to access social pension benefits makes evident how challenging targeting in India has been since the introduction of targeted anti-poverty schemes and continues to be despite the described reform efforts.

Although with the reforms of the national social pension scheme in 2007 the allocation of social pensions has shifted towards a more observable criterion, the BPL card, this criterion itself is too weakly implemented to achieve effective targeting of the poor. This indicates the deeply-rooted targeting problem of BPL cards in India. Hence, using the allocation of ration cards as a tool to allocate benefits of a social protection scheme implies a transfer of the targeting weaknesses of BPL cards to the social pension scheme. The results directly support the existing literature which recommends a reform of the allocation of BPL cards and suggests alternative targeting approaches for social pensions such as the use of clear exclusion criteria that at least prevent clearly non-poor elderly from accessing social benefits targeted at the poor and facilitate access to social pensions for the elderly poor.

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Appendix

Appendix 1: List of variables

Variable	Definition
Social pension	Dummy variable equal to 1 if individual receives social pension and 0 otherwise
After	Dummy variable equal to 1 if data was collected after the reform, i.e. in 2011-12, 0 otherwise
BPL card	Dummy variable equal to 1 if individual is entitled to benefits through the ration card, 0 otherwise i.e. for individuals who are not entitled to BPL benefits
Age	Age of the individual
Household assets	Asset index for number of assets owned by household from 0 to 30
Land holding	Land holding in acres
Local government connection	Dummy variable equal to 1 if somebody from the household or close to the household is a local government official, 0 otherwise
Public meeting	Dummy variable equal to 1 if individual belongs to a household that participates regularly in public meetings and 0 otherwise.
Social organization	Dummy variable equal to 1 if individual belongs to a household that is member in a social organization, 0 otherwise
Watching TV	Dummy variable equal to 1 if individual belongs to a household watching TV regularly
Reading newspaper	Dummy variable equal to 1 if individual belongs to a household reading newspaper regularly, 0 otherwise
Education	Completed years of schooling
Highest adult education in household	Completed years of schooling of the most educated household member
Working	Dummy variable equal to 1 if individual works more than 240 hours per year, 0 otherwise
Permanent job in household	Dummy variable equal to 1 if anybody in the household has a permanent job
Families collaborate	Dummy variable equal to 1 if individual lives in a household that reports that families collaborate to solve local problems, 0 otherwise
Peaceful village	Dummy variable equal to 1 if individual lives in a household that reports that people in the village/block in general get well along with each other, 0 otherwise
Share of electrified households	Share of electrified households in village or block
Head of household	Dummy variable equal to 1 if individual is head of household, 0 otherwise
Widow	Dummy variable equal to 1 if individual is widowed, 0 otherwise
Household size	Number of individuals living in the household
Urban	Dummy variable equal to 1 if individual lives in a household in urban areas, 0 otherwise
Scheduled tribes	Dummy variable equal to 1 if individual lives in a household belonging to scheduled tribes, 0 otherwise
Scheduled castes	Dummy variable equal to 1 if individual lives in a household belonging to scheduled castes, 0 otherwise
Other backward castes	Dummy variable equal to 1 if individual lives in a household belonging to other backward castes, 0 otherwise
Female	Dummy variable equal to 1 if individual is female, 0 otherwise
Hindu	Dummy variable equal to 1 if individual lives in a Hindu household, 0 otherwise
Muslim	Dummy variable equal to 1 if individual lives in a Muslim household, 0 otherwise
COPC	Monthly consumption expenditure per capita
COPC adj	Monthly consumption expenditure per capita adjusted
Asset poor	Dummy variable equal to 1 if individual belongs to a household in the lowest asset ownership quartile, 0 otherwise
Poor	Dummy variable equal to 1 if individual belongs to a household that has a per capita consumption expenditure below the Tendulkar poverty line and 0 otherwise
Poor adj.	Dummy variable equal to 1 if individual belongs to a household that has a per capita

	consumption expenditure adjusted for social pension benefits below the Tendulkar poverty line and 0 otherwise

Appendix 2: State wise eligibility ages for social pensions

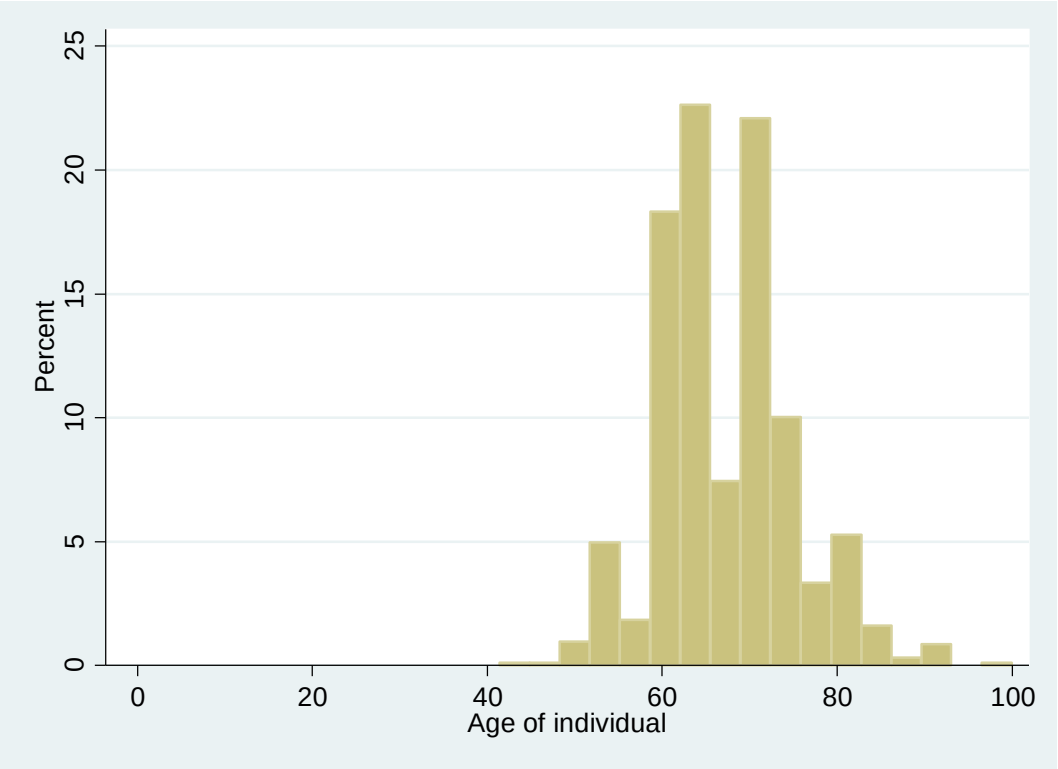
State	2004-05	2011-12
Jammu and Kashmir	65	60
Himachal Pradesh	65	60
Punjab	60 (f), 65 (m)	60
Chandigarh	65	60
Uttarakhand	65	60
Haryana	65	60
Delhi	60	60
Rajasthan	55 (f), 58 (m)	55 (f), 58 (m)
Uttar Pradesh	65	60
Bihar	60	60
Sikkim	65	60
Arunachal Pradesh	60	60
Nagaland	65	60
Manipur	60 (f), 65 (m)	60
Mizoram	60 (f), 65 (m)	60
Tripura	65	60
Meghalaya	60 (f), 65 (m)	60
Assam	60 (f), 65 (m)	60
West Bengal	65	60
Jharkhand	65	60
Odisha	65	60
Chattisgarh	65	60
Madhya Pradesh	65	60
Gujarat	60	60
Daman & Diu	60	60
D & N Haveli	65	60
Maharashtra	60 (f), 65 (m)	60
Andhra Pradesh	65	60
Karnataka	60 (f), 65 (m)	60
Goa	60	60
Lakshadweep	60	60
Kerala	65	60
Tamil Nadu	65	60
Pondicherry	60	60
Andaman Islands	60	60

Notes: m: male, f: female

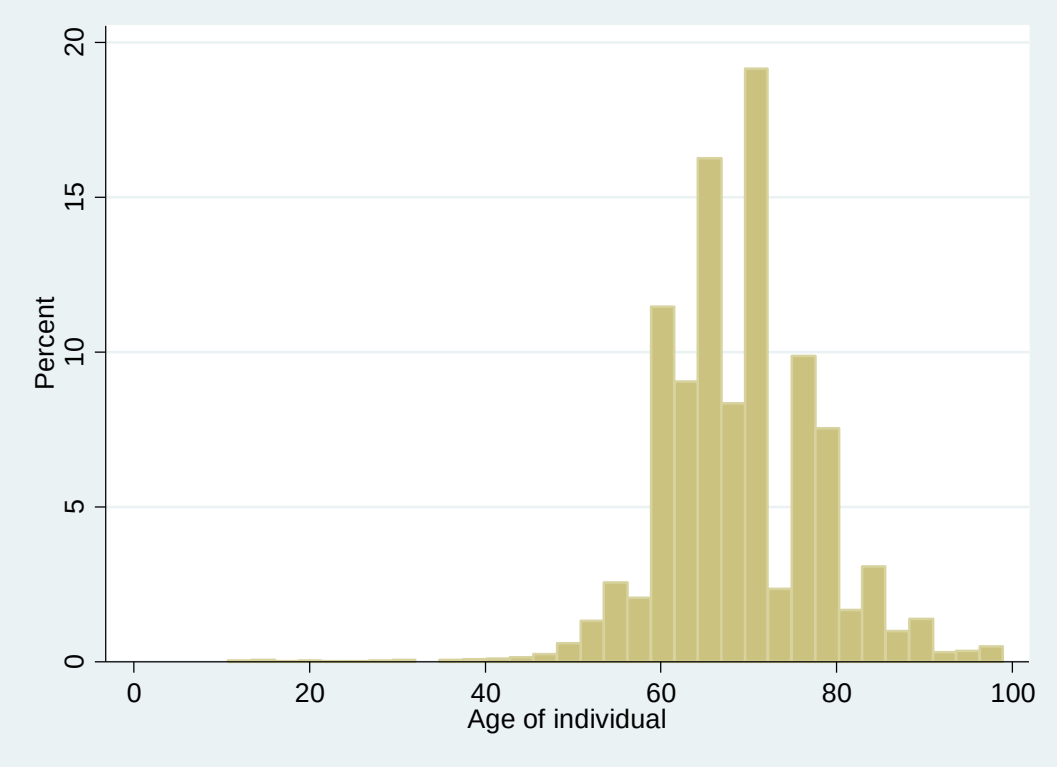
Source: Kaushal, 2014 and Government of India, 2011.

Appendix 3: Age distribution of social pension beneficiaries

(a) 2004-05



(b) 2011-12



Appendix 4: How did the factors change over time?

VARIABLES	Linear probability model with individual fixed effects 2004-05 to 2011-12
BPL card	-0.0354***
	(0.012)
After X BPL card	0.1976***
	(0.013)
Local government connection	0.0076
	(0.017)
After X Local government connection	0.0240
	(0.021)
Public meeting	-0.0128
	(0.012)
After X Public meeting	0.0209
	(0.016)
Social organization	-0.0102
	(0.010)
After X social organization	0.0194
	(0.013)
Observations	29,904
Number of id	14,952
Weighted avg. prediction of Y	0.138
Share of predicted values in [0;1]	85%
Adjusted within R-squared	0.234

The dependent variable is *social pension receipt*. Using sampling weights, I account for sampling design. Cluster-robust standard errors are shown in parentheses. All control variables are included.
* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

Source: Author's estimations based on IHDS I for 2004-05 and IHDS II for 2011-12.

Appendix 5: Heterogeneity analysis for asset poor and asset non-poor individuals

VARIABLES	Linear probability model with individual fixed effects 2004-05 to 2011-12
BPL card	-0.0523***
	(0.014)
BPL card X After	0.2107***
	(0.017)
BPL card X Asset poor	0.0736***
	(0.024)
BPL card X After X Asset poor	-0.0925***
	(0.031)
Local government connection	0.0052
	(0.018)
Local government connection X After	0.0307
	(0.023)
Local government connection X Asset poor	-0.0063
	(0.047)
Local government connection X After X Asset poor	-0.0045
	(0.059)
Public meeting	-0.0202
	(0.013)
Public meeting X After	0.0275
	(0.018)
Public meeting X Asset poor	0.0208
	(0.030)
Public meeting X After X Asset poor	-0.0091
	(0.040)
Social organization	-0.0134
	(0.011)
Social organization X After	0.0213
	(0.015)
Social organization X Asset poor	0.0062
	(0.026)
Social organization X After X Asset poor	0.0084
	(0.035)
Observations	29,904
Number of id	14,952
Weighted avg. prediction of Y	0.138
Share of predicted values in [0;1]	85%
Adjusted within R-squared	0.239

The dependent variable is *social pension receipt*. I account for sampling design. Cluster-robust standard errors are shown in parentheses. All control variables are included. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

Source: Author's estimations based on IHDS I for 2004-05 and IHDS II for 2011-12.